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SURGEONS

TWO CASES OF
REMOVAL OF UTERINE MYOMA

ONE, SUPRAPUBIC HYSTERECTOMY; THE OTHER, COMPLETE HYSTERECTOMY.

A New Method of disposing of the Stump.
Microscopical Examination of the Appendages.
Remarks on the Treatment of Uterine Myoma by Electricity.

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Case I.—V. J., thirty-five years of age, had one child twenty years ago, and has been sick from that time, with constant pain and distress in the abdomen; but the last six or seven years has been the period of her greatest suffering; severe cramps several days before menstruation, pain, sick stomach, vomiting, and then would follow uterine hæmorrhage lasting fifteen days or more, leaving the patient perfectly prostrated, weak, sick, and incapable of any kind of labor. During the last three years there has been scarce a day's interval entirely free from the flow, the regular menstrual period being recognized only by the increased flow and more severe and continued cramps.

The patient called to see me first on the 15th day of last August. She said then that she had had a constant hæmorrhage, varying in quantity, since the 3d of the preceding May. I found the uterus enlarged by an intramural myoma, the tumor commencing at the internal os, suddenly increasing in size, and extending an inch above the umbilicus; the lower portion was wedged tightly down into the small pelvis. The patient called to see me once after this; she was still bleeding and growing weaker. She entered the Woman's Hospital of Brooklyn in October, 1887, in a very weak and an extremely anæmic condition. She was put immediately into bed and had the most careful nursing, the best nourishment, and constant medical attendance. She continued to bleed; was evidently growing weaker and less able to help herself; complained of great pressure and distress in the region of the bladder and rectum, the functions of which organs were seriously interfered with, so it was decided best to perform hysterectomy without delay. Accordingly, on the 15th of November, after the usual preparations, the operation was performed, with the assistance of Dr. C. N. Dixon Jones. An incision six inches in length was made in the abdominal wall. The omentum was firmly adherent in many places. After separating and tying, I passed my hand around the tumor to free other adhesions, which were most numerous in the region of the uterine appendages. The incision had to be enlarged, and, after liberating the adhesions, with one hand under the tumor and the other with Tait's screw, the mass was lifted from the abdominal cavity. There was no little difficulty in tying off the broad ligaments, and yet there were graver difficulties in securing the uterine pedicle. First putting a temporary clamp around the tumor, the peritoneal covering was cut and the body enucleated, and many small fibroids shelled out. Then, lower down, a wire clamp was applied with Kœberlé's serre-nœud, still more of the mass was cut away, and more small fibroids were removed. The pedicle, thus secured, was transfixed with pins and placed in the lower angle of the abdominal wound, the peritoneal edges were brought closely around it; a drainage-tube was placed in the upper part of the wound extending to the lower part of the pelvis, and, after closing the abdominal walls, the usual dressings were applied. When the operation was finished the patient was in good condition; pulse 125, temperature 97° F. The same evening the wound was redressed, and two ounces of bloody serum drawn from the tube. Second day, dressing renewed, tube emptied three times; pulse 125, temperature 101·7° F.; urine passed naturally. Third day, same treatment, three turns given to the screw; pulse 120, temperature 101·5° F.; natural evacuation of the bowels. Her temperature now went down to 100° F.; dressings changed every day; drainage-tube removed on the seventh day, and when removed there spurted out great quantities of pus; the pus cavity extended to the stump, and the pus was in such quantity that for several days it was drawn off by a glass syringe and the abscess washed out. The patient was apparently very comfortable; natural evacuations and a good appetite. On the 15th the stump came off, leaving a healthy granulating cavity which soon healed. The patient continued to improve, gained in strength every day, and no happier face was in the hospital than that of this long-suffering woman; she said she was better and more comfortable than she had been for twenty years.

December 20th.—Wound entirely healed; patient able to sit up.

January 5th.—Patient goes around perfectly well and with ordinary strength.

May 5th and July 18th.—Patient strong and in excellent health, able to attend to her ordinary duties.

The pedicle in this case was so extremely short that it was necessary to make great traction in order to get it into the abdominal wound. I thought for a moment of adopting Billroth's management of the pedicle as I saw him proceed when I was in Vienna in the fall of 1876, and about as pictured in Gerster's late work on surgery, but the stump was so large and so low down in the contracted pelvis that this would have been attended with almost insurmountable difficulties, especially as the pedicle was composed of a portion of the tumor, and so I did not dare to trust to this method. The *ligature* was out of the question, though Thomas Keith says in the "British Medical Journal" for December 10, 1887: "The best results in hysterectomy will be got by the ligature." A few years before he had said: "Muscular tissue is ill adapted to bearing a ligature. You tie it as tightly as you can draw the threads, and in an hour or two the muscular tissue has contracted and internal hæmorrhage goes on." Emmet says in his work, p. 611: "I am disposed to the belief that there can be no likelihood of even an approximate success to that after the removal of an ovarian tumor until the stump can be treated with safety in the same manner by being returned to the abdominal cavity." He says elsewhere: "If myotomy was to have a future, it would have to be done by covering the stump with the peritonæum and dropping it into the peritoneal cavity." ("American Journal of Obstetrics and Diseases of Women and Children," January 5, 1885, p. 85.)

I saw Schroeder, of Berlin, manage the pedicle intraperitoneally and the patients did well, yet Schroeder's published statistics are 32 deaths out of 100 cases. Martin, by the same method of treating the pedicle, as reported at the last Medical Congress, lost 27 out of 84, while Bantock, by the extraperitoneal method, reported a mortality of 12 out of 72, and he said that with him "the intraperitoneal method has been as uniformly disastrous as the extraperitoneal has been successful." Bantock said in the "British Gynæcological Journal," May, 1886: "In every case in which he had trusted to a ligature a fatal result had ensued, and he would not resort to it again; while in similar cases treated by the serre-nœud he had had not a moment's anxiety." He reported at the same time a case of "a subserous tumor which sprang from the fundus by a fleshy vascular pedicle an inch and a half long and an inch and a half by two inches in diameter. He first firmly compressed the pedicle by large powerful forceps, then transfixed and tied the pedicle with a figure-of-eight loop, and then firmly encircled the whole pedicle with another ligature. The tumor was cut away and the peritoneal edges were brought together by a continuous suture. Scarcely was this finished when it was evident that the ligatures were loose, and he was obliged to apply the serre-nœud and keep the stump outside." In his late address in Philadelphia* he remarked: "The uterine stump, under the pressure of a ligature tied with as great a strain as it will bear, yields before the compressing force so that in a few hours the ligatures may be quite loose, and that when he had so treated the pedicle of a tumor which may have sprung from the fundus, or some part of the free surface of the uterus, out of five cases so treated, only one was successful." †

Matthew D. Mann reports in the "Am. Jour. of Obstetrics and Diseases of Women and Children," May, 1887, a case where a tumor was attached to the fundus uteri by "a small, short pedicle. Tempted by its smallness, I ligatured it with silk, pulled it very tightly, and asked my assistant to try after I had exerted my utmost strength. In a few hours there was internal hæmorrhage, the patient was pulseless and profoundly collapsed, and was saved only by the use of the clamp; the silk ligatures had slipped entirely off, and were never found." Dr. J. C. Renton reports a case: Pedicle was first treated with silk ligature, hæmorrhage supervened, the abdomen was re-opened, and the pedicle secured by Kœberlé's serre-nœud. Dr. S. C. Gordon, of Maine, reports two fatal cases of hysterectomy, 1871–1883; ligature to the pedicle in both cases. Dr. E. Muller, of South Carolina, reports a fatal case; ligature and stump returned to the abdominal cavity.‡

Gerster, in his work on surgery, says of a case of hysterectomy: "The smallness of the stump induced the author to treat it like an ovarian pedicle, and it was replaced in the abdominal cavity after securing the elastic ligature by a knot of strong silk." The further record is: "The author's only case of supra-vaginal hysterectomy ended fatally by septicæmia." Lawson Tait, in the "British Medical Journal," December 17, 1887, says: "I have already placed on record the fact that my mortality in hysterectomy was largely due to efforts to develop the intraperitoneal method of dealing with the pedicle, and my recent success is due to using the clamp entirely." Thomas said "he had removed the uterus from seventeen patients; nine of them had recovered, and the remainder had died. A large number had been treated by the clamp, and they had done remarkably well. A smaller number had been treated by simply returning the pedicle, and they had done badly."* Dirner, of Budapest, Hungary, speaks in favor of the extraperitoneal method, "as it prevents hæmorrhage and sepsis more completely than the other method." Greig Smith † says: "The dangers of the intraperitoneal treatment are nearly twice as great as the extraperitoneal."

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* "Medical News," November 19, 1887.

† In London, September 29, 1886, I saw Bantock remove a large fibroid which was attached to the fundus by a short, soft pedicle. The pedicle was secured by Kœberlé's serre-nœud and placed in the abdominal wound.

‡ Bigelow, "Am. Jour. Obstet."

But, even when the stump is treated extraperitoneally, there are many dangers and may be much trouble, as an operation, performed, September, 1887, by one of the most distinguished living gynæcological surgeons and at a center of gynæcological science, the record is death on the seventh day "from pus cavity on one side of the pedicle." The pedicle, when treated extraperitoneally, becomes almost a foreign body, ofttimes a putrid mass; the odor that is sometimes perceived tells how danger is lurking around. Greig Smith puts it as pleasantly as possible when he says: "The part of the pedicle beyond the wire or ligature is removed by pressure necrosis. A sort of dry gangrene, which is not entirely putrefactive and which does not set loose foul discharges, is sought to be produced." We may seek to produce the best conditions, but there are still foul septic discharges, and, if the patient recovers, it is only the question of escaping the many dangerous possibilities. At best the stump is a hard, fibrous mass, extending from the vaginal to the abdominal walls, and pulling upon both. In this case I have reported the traction upon the abdominal walls was so great that it made a considerable sink or depresssion in the surface, and caused such pressure from the pins that, notwithstanding every care and all possible disinfection, keeping constantly fresh gauze under the pins, yet beneath them the skin sloughed, and with all this there were the threatening dangers of sepsis, abscess, etc., from the decaying stump. Is a course of procedure the wisest that is necessarily accompanied by, or may encounter, such grave conditions? What is the good of preserving the stump intraperitoneally or extraperitoneally? It is only the remnant or remains of a sickly womb, and can be of no service and may do much damage—how much, who can tell?—not only at the time of the operation, but in the subsequent history of the patient. One case is reported in which "within a year cancer developed in the remains of the cervix, and proved fatal."

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* "Am. Jour. Obstet.," January, 1887.

† *Opus*, 2d ed., 1888.

In both methods of operation, extraperitoneal or intraperitoneal, it is the stump that makes the difficulty; it is the source of most of the danger, and statistical history shows that the great mortality of this operation is due almost entirely to unfavorable conditions originating in, or generated around, the stump. Emmet reports a case, *op.*, p. 614: "The stump was almost all cut away, leaving only enough of the cervical tissues to hold the ligatures from slipping off, and it was so covered as to be placed outside of the peritoneal cavity, yet on the fourteenth day the patient died from rupture of an abscess." This distinguished operator says further: "I have removed the whole or portions of the uterus in five instances, and, notwithstanding the greatest care to insure a favorable result, all the patients died, sooner or later, from *blood-poisoning* generated about the stump." Shall we say it is a safe method when it is so frequently fatal in the hands of our best operators? It is not the operation, or the method of operation, but it is the danger which is *inherent in this method of procedure.*

When I presented Case I of this paper to the New York Pathological Society, November 23, 1887, I stated that I believed a better and more natural procedure would have been, after opening the abdominal walls, being assured of the condition of affairs, and liberating any adhesions that might exist, then to have severed the vaginal connections, as in kolpo-hysterectomy, and to have removed the entire uterus. Or, if the body of the tumor or uterus was removed through the abdominal incision, then to remove the uterine stump *per vaginam*, and, after "la toilette du peritoine," close the abdominal walls, and *leave the vaginal opening, as the best and most natural way of drainage.** I also gave in a few words the following reasons: This procedure would

1. Have very much shortened the operation, as most of the time was taken up in securing and placing the stump.

2. There would have been less shock to the patient. Certainly, to cut through such an organ as the uterus must cause a more profound shock than severing the vaginal membranes; besides, the constant traction of the pedicle makes a *continuous* shock. At the end of the second day after the operation there were more evidences of shock in the patient than at the close of the operation, which, no

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* "Medical Record," December 24, 1887.

doubt, was due to the strain and nervous tension caused by the constant pulling of the pedicle.

3. This mode of procedure would very much lessen the dangers of the operation, not only in diminishing the shock and shortening the time of the operation, but principally that it *gets clear of the stump, et tous ses douleurs.*

4. The patient would make a more rapid recovery. The vaginal wound will heal very much more quickly and naturally than the encircled stump, and will be attended with less complicating difficulties; besides, it seems to be *nature's natural outlet.* Two weeks after the abdominal hysterectomy I performed in the Woman's Hospital a vaginal hysterectomy for cancer.

The patient not only had a tainted constitution, but was weaker and feebler than the last patient; was not able to sit up and had to be carried to the operating-table. Kolpo-hysterectomy was performed on the 28th of November, and the patient was able to be out of bed on the 15th of December, stronger than before the operation, gradually gaining strength; on the 23d of December left the hospital apparently well, and since has been able to assume the charge of her large family. The case of abdominal hysterectomy was performed on November 15th, but, on account of the conditions consequent upon the treatment of the pedicle, the patient was not able to be out of bed until the 20th of December, or to leave the hospital until the 20th of January.

Description of the Tumor.—All that was apparently left of the uterine structure was the thin layer of muscular fibrous tissue, half an inch in thickness, which surrounded and held tightly and firmly a mass of fibroid growths—held them so firmly and compactly that one feeling on the outside could not have imagined that it was not one solid myoma. Between the tumors there were only thin layers of musculo fibrous tissue; thus the uterus was scarcely more than a thin sac, with intervening structures for holding these tumors.

The Uterine Appendages—Macroscopical Appearance.—The right ovary was small, measuring an inch by an inch and a half, shriveled and cirrhotic in appearance, and incased in a mass of adhesions. When the ovary was cut open, almost the entire portion was occupied by a single cyst; only a thin wall of ovarian tissue remained.

Microscopical Examination.—The pseudo-membrane around the ovary was crowded with inflammatory corpuscles, and in it were found many newly formed and enlarged blood-vessels resulting from the peri-oophoritis and localized peritonitis. The ovary showed chronic oophoritis with acute relapses, or was in a state of subacute oophoritis. Much of the ovarian tissue was entirely broken down into inflammatory corpuscles; in some places the inflammatory corpuscles were changing to fibrous connecting tissue, and in other places this new fibrous connective tissue was again breaking down into inflammatory corpuscles. No doubt in the frequent attacks of oophoritis in the twenty years of suffering the fibrous connective tissue had been repeatedly broken down into inflammatory corpuscles, and then as repeatedly changed to fibrous connective tissue.

The wall of the cyst was composed of different layers of inflammatory deposits. The innermost layer was in a state of intense inflammation; in the next the inflammatory corpuscles were changing to fibrous connective tissue, and this layer gradually passed into a broad layer of new fibrous connective tissue, which in some places extends to the periphery of the ovary, and this new fibrous connective tissue was again breaking down into inflammatory corpuscles and joining the inflamed pseudo-membrane. In one place there was a narrow portion of normal cortical substance, and in this little island, amid the sea of desolation, are seen securely lodged three normal ova, but no possible chance for these little life-cells to ever fulfill their physiological destiny: yet Nature always does her best to perform a function or to perpetuate life.

While in many places severe inflammation extended to the periphery, the most intense inflammation was near the pelvis, where many of the arteries show arteritis and endarteritis, some entirely obliterated, others in a state of waxy degeneration, the endothelium being changed to fibrous connective tissue.

The left ovary is only a thin membranous sac, half an inch in diameter; under the microscope this proves to be a cyst wall with different layers of inflammatory deposits; no normal ovarian tissue and no ova were seen. The Falloppian tubes, when examined under the microscope, are like sacs flattened out by pressure; the thin walls contain a layer of newly formed epithelial cells which are filled with inflammatory corpuscles. The folds of the mucosa have entirely disappeared. This pathological condition of the tubes gives evidence of long-continued chronic disease; probably at one time it was hydrosalpinx.

Case II.—H. S., a Swede, called to see me on January 17, 1888. Forty years of age, twice married; lived with her first husband fourteen years, with the last has lived three years; never had any children. The menstrual periods recurred every two or three weeks, lasting from eight to ten days, the flow hæmorrhagic. Examination showed a uterine myoma extending from the cervix to an inch of the ensiform cartilage, and larger than the uterus at term. The lower portion of the tumor was hard and firm, filling tightly all the space between the cervix and pubic bone, pushing the cervix far back and up, from which position it could not be moved in the least, and it was quite as impossible to pass a sound into the uterine canal. Beneath this portion of the tumor the bladder spread out; a sound in the bladder passed directly down to the cervix.

The growth had evidently existed for many years, but was becoming more and more a source of distress and oppression, exhausting her by its own weight, interfering with her breathing, and was such a burden that she could with difficulty turn from side to side in bed, and frequently had to rise from her bed and stand up to find relief. Its enormous size incapacitated her for any kind of employment; she could not bend over, and if she was much on her feet the pressure gave her neuralgic pains in her limbs, of which she has frequently had most severe attacks, "rolled on the floor in agony," and found relief only by hypodermic injections of morphine. From time to time she has consulted several well-known practitioners. They all told her the tumor could not be removed; that the attempt to remove it would cause her death.

She said she would rather die than endure the constant torment; that "often she has felt that she must kill herself." She was ever conscious of its presence; waked at night with a distressed agony of mind only to find it there. It was such a mental distress that even her well-balanced mind and strong nervous system seemed ready to give way. She was becoming a wreck mentally and physically. Her emaciated body was only a framework to support and transport the growth. Naturally a strong, vigorous woman and from a long-lived family, now, at the age of forty, she is old and worn out, reduced in health, strength, and flesh, and is failing rapidly. Her husband says she has failed more during the last six months than for three years previously.

Some say "such tumors do not kill, that they have a limited active existence, and of themselves they rarely shorten life," etc. Certainly in this case the tumor was killing the patient, rapidly exhausting her life-powers, interfering with every vital function, and rendering every organ abnormal. It had existed for many years and was still in a state of active growth. Emmet tells the history of many when he incidentally remarks of one of his patients: "The tumor gradually increased in size, and in a few years after she died of exhaustion."

Two or three years ago a young woman about thirty-seven years of age placed herself under my care. I found a uterine myoma, six to nine pounds weight, closely wedged into the pelvis and growing upward and backward; a fistula had opened from it into the colon or rectum, and she was obliged to take morphine to control the action of the bowels. Examination of the kidneys also showed serious disturbances, probably from pressure. Even at that time, though she was still so young, yet such injuries or bad conditions had the tumor produced that the case was then considered hopeless--*too far gone for an operation.* Professor B. F. Dawson, who kindly saw the case with me, coincided in that opinion; so also did Dr. Charles Lee. A few weeks ago this same patient called again to see me. General ascites had developed, the action of the bowels was scarcely controlled by large daily doses of morphine, and the growing tumor had caused yet more severe nephritis. The woman was certainly dying of the fibroma,* and hundreds of others have died from the same cause, even though the name of some incidental disease may have filled the death certificate.

I have another case, a larger tumor, but it grows up into the abdomen, consequently does not work as much evil or give as much distress; and though this patient also is in the prime of life and has a strong, vigorous constitution, yet the tumor even now renders her almost helpless. If she works a little she must lie down and rest; she suffers pain, the tumor exhausts her, and is rapidly doing its fatal work.

Mann says: "That fibroid tumors do cause death even before reaching a great size, I have had several opportunities of observing. When they by their presence, through pain and suffering were gradually wearing out the life of the patient, and making that life, while it did last, not worth living."

I do not believe a woman can have a uterine fibroid, however small, without having direct and sympathetic troubles, for the tumors not only may produce various uterine misplacements, with the accompanying evils and distresses, but they encroach upon normal structure, derange, change, and destroy it, disturb normal functions, are a constant irritation to the organic system of nerves, and, by sympathetic troubles and reflex conditions, the injuries they produce are more than we can measure or calculate; they render the whole being physically and morally incompetent. Nature is intolerant of them, and the patients are worn out by the disorders resulting from the fibroids. Greig Smith says: "They set up great irritation of the uterine mucous membrane." Professor Rose, of Berlin, says: "By their large size, they encumber the thoracic organs in their functions. Dilatation of the right ventricle results, with also atrophy of the diaphragm. Repeated attacks of ascites bring orthopnœa and danger of death from asphyxia." Thomas says: "They in some way interfere with hæmatosis and the functions of the ganglionic nervous system. They disorder the mind, produce dangerous mental depression and anxiety, and disturbance of the functions of nutrition and secretion, which slowly drag the patient down to death." Goodell says: "Nothing worries a woman more than the discovery of a tumor in the abdomen. By sheer brooding I have seen one woman become insane and another go into a decline." A pregnant woman has to carry her burden only a few months and all the time with a happy idea, an assured prospect, that it will soon end and she will have inexpressible joy; she is happy and comforted; her very soul holds communion with the little being, yet even for that short time, and with such joyful anticipations, she is wearied and worn out with the burden; but a woman with a fibroid tumor—ah! she has all the time the *dead* burden. No hope of relief, no anticipation, only a sickening prospect, gloomy forebodings, and the saddest of possibilities! "Such a misery," said to me a patient who had carried the burden for many years, "let people who say it is nothing, carry it for one week!"

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* At one time the patient could have been cured by hysterectomy, and before that a yet simpler operation might have saved her years of suffering; but now its continued growth will soon end her life.

H. S. was admitted into the Woman's Hospital of Brooklyn, February 5th. Operation performed February 16th. As she lay on the operating-table under ether, the body seemed a mere skeleton; the monstrously large and nodulated tumor filled the whole abdominal cavity, extending up to and under the ribs. A small exploratory incision was made first midway between the umbilicus and down to the pubes. I passed my hand in and around to free adhesions, then by the help of Tait's screw, with the left hand beneath, the mass was lifted out of the abdominal cavity. The right tube was greatly enlarged, presented the appearance of a coiled-up and adherent mass of intestine; the left tube was also adherent, its fimbriated extremity closed, and the tube filled with pus. The broad ligaments were tied off and the temporary rope clamp * thrown around the tumor, a great portion of which was cut away, then Kœberlé's clamp was screwed on lower down, when other portions of fibroids were enucleated. The pedicle, thus secured, consisted of a mass of tumors, one of them three inches in diameter, all closely packed, reaching to the cervix. I knew that to make a pedicle of the mass would not only endanger the patient's life, but render the operation unfinished and imperfect, so I decided at once to proceed as in vaginal hysterectomy for the removal of this portion. Dr. Charles N. D. Jones took charge of the abdominal wound, temporarily closed and covered with aseptic gauze, and greatly assisted me by forcibly pushing down the cervix with the contained tumor. I separated the vaginal attachments, carefully preserving the bladder and ureters intact. Still the large size of the tumor would not allow it to come down sufficiently to secure the broad ligaments, so while I was clamping the vaginal opening I requested Dr. Jones to clamp the broad ligaments from above. The size of the tumor rendered it necessary to deliver it through the abdominal opening. The large forceps which clamped the broad ligaments were left on, projecting through the abdominal wound; by the side of these was placed the drainage-tube. Several smaller forceps were left in the vaginal wound, the peritoneal cavity was washed out, the abdominal wound closed and dressed, the vaginal wound left open for drainage and treated as in vaginal hysterectomy.

By thus removing the cervix, or the entire uterus, we not only got clear of the stump, but of the great mass of loose tissue which surrounded it and which, if it had remained, would doubtless have produced the most serious consequences, and which is probably an explanation of why the report has so frequently to be made of death on the ninth, twelfth, or fourteenth day from abscess near the

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* Dr. C. N. D. Jones's modification of Tait's temporary clamp. See "New York Medical Journal," June, 1888.

stump. I do not see how in this case, with every precaution, the formation of an abscess could have been prevented in so much loose tissue. Even if all the fibroids had been enucleated there would still have been a great pocket of loose tissue. Schroeder says: "The difficulties of the case become very numerous when we have to remove a fibroid developed in the lower part of the uterus and extending into the cellular mass of the pelvis. If the tumor is enucleated there remains a cavity. If I do not expect a very abundant secretion from it I leave the walls of the cavity simply to close upon each other and drop the whole into the abdomen." Possibly just such cases increased Schroeder's mortality list.

It was marvelous in this case to see how much more rapid was the convalescence of the patient than it would have been had not the stump been removed. Case I, reported in this paper, with the stump in the abdominal wound, looked as she lay in bed as if she was constantly held down by a ton weight which made her almost helpless and motionless; but this patient, pinioned by no stump, moved easily from side to side, was extremely light and agile in all her movements, actually got out of bed on the seventh day (without our knowledge, however) and after the eleventh day could sit up occasionally, and when necessary go to the water-closet. Keith says: "The average time of convalescence in the extraperitoneal cases was forty-one days; of the intraperitoneal method, three weeks." This patient was practically well on the twelfth or fourteenth day, had an excellent appetite, and had gained in flesh and strength. No such results could possibly have been secured if the stump had been left.

On the eighth day the patient menstruated, the blood seeming to ooze from the internal surface of the vagina, and the flow lasted five days. The tumor weighed thirteen pounds and a half. Nothing apparently was left of the uterus except the little undeveloped cervix and the comparatively thin layer of fibro-muscular tissue which surrounded the mass of tumors, and held them so firmly and solidly that, even on closely examining the naked tumor, there was no other appearance than one solid formation.

On cutting the capsule or thin wall of the uterus, the great mass unfolded itself, and to have crowded it back into the same compass would have been an impossibility. The upper third was an oblong solid tumor, measuring 9½ inches in diameter, and there was a mass of separate, round, solid tumors, measuring 2½, 3½, or 4 inches in diameter. One tumor, 3½ or 4 inches in diameter, filled the space commencing at the internal os, leaving, so far as could be perceived, not the least trace of a uterine canal, and agglutinated to this were several smaller fibromata; this was the mass that on first examination was perceived in the pelvis, and which pushed the cervix far backward and upward and prevented the entrance of the sound. It was also the mass that was finally removed by separating the vaginal attachments and broad ligaments.

The Appendages—Macroscopical Appearance.—Right tube measured ten inches in length, was coiled upon itself, and filled with bloody serum. The closed, fimbriated extremity was four inches and three quarters in circumference. Left tube, five inches in length, was filled with pus, and its closed, fimbriated extremity was adherent to the left ovary. The right ovary was atrophied and hidden in the folds of the right tube; the left ovary was much enlarged and contained a hæmatoma two inches in diameter.

Microscopical Examination—Right Tube.—The wall of this tube consisted almost entirely of dense, fibrous connective tissue, its muscle being transformed into this tissue. A few remnants of muscle fibers had become waxy, and were breaking down into inflammatory corpuscles.

The epithelium of the mucosa had entirely disappeared; no remnants of it were left, as it was entirely changed to fibrous connective tissue, almost cicatricial. There were many newly formed blood-vessels with thick walls, and the newly formed fibrous connective tissue was crowded with inflammatory corpuscles.

The left tube was five inches in length and filled with pus. Almost the entire muscular structure of this tube also had disappeared or was changed to fibrous connective tissue, and this new tissue was crowded with inflammatory corpuscles which, in many places, formed abscesses. The few scattered bundles of smooth muscle left were in a state of intense inflammation and beginning ulceration.

Also, in the left tube, the epithelium of the mucosa was entirely destroyed and the mucosa was crowded with inflammatory corpuscles. Only a few blunt remnants of the folds of the mucosa were left, and these were in a state of intense inflammation. Amid these thickly crowded inflammatory corpuscles were seen in every part coarse bundles of fibrous connective tissue, showing that the mucosa had previously been invaded by a plastic inflammation of which probably there had been repeated attacks. Also in the mucosa, or in the previously formed tissue, there were seen many newly formed blood-vessels.

The ovaries also gave evidence of extensive changes from long-existing disease. Not a vestige of normal ovarian structure was seen, nor could an ovum be found in either ovary. Though the pathological changes showed long-existing chronic disease, yet portions of the ovary were in a state of acute inflammation.

There must be some connection in the way of cause and effect between disease of the uterine appendages and a fibroid tumor or uterine myoma. In both of the cases here reported the disease of the appendages had existed many years—probably twenty. Both patients were sterile for that length of time. The fibroid in each, twenty years ago, was small, probably did not exist, and *would not*, *in either case*, have been a cause of sterility, nor could it in either case have produced the disease of the appendages; but the disease of the appendages, which was probably acquired in early married life, would have produced the sterility, and probably had such a disturbing effect upon the nutrition and circulation of the uterus that *it may in each case have caused the growth of the tumor.* If the prepuce is narrow the prostate may be obstructed, and an enlarged prostate may produce kidney disease. May not an obstructed or diseased tube have equally a disturbing effect upon the nutrition of the uterus?

Of two cases of myofibroma of the uterus, the histories of which I reported not long ago,* one had an intermural tumor, the other had two subperitoneal fibroids. Both women had been sterile for eight or nine years. Both had had disease of the uterine appendages for about that time —one, chronic ovaritis and pyosalpinx; the other, chronic ovaritis and interstitial salpingitis. The fibroid in either case eight years ago would not have caused the sterility; they were at the time very small, if they existed at all; but the disease of the appendages would have caused sterility, and quite probably this disease of the appendages caused during this period the development of the fibroid.

Yesterday, July 16th, a woman called to see me suffering from a uterine myoma, very large and filling the pelvis, and one large movable subperitoneal growth. She is forty-four years old, has been married twenty-four years, and never has had any children. Since marriage, menstruation has always been accompanied with pain—pain commencing two or three days before the flow, showing that it was due to the diseased appendages. In this case also we see that a possibly small fibroid twenty-four years ago would not have caused the sterility; probably no fibroid existed at the time, but the sterility would have been caused by the disease of the appendages, which did exist at that time, and that this disease of the uterine appendages may have caused the growth of the uterine fibroid.

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* "Medical Record," Nov. 23, 1886. "Am. Jour. Obst.," March, 1888.

In almost every reported case of hysterectomy for uterine myoma, when the appendages are referred to, they are mentioned as being in a state of disease, and in many instances when they are supposed to be normal the microscope would doubtless reveal a condition of long-existing disease and degeneration. Mann, speaking of a case of hysterectomy for fibroid tumor, says: "There was no chance of removing the ovaries, as they were bound down in a mass of adhesions." Drysdale, reporting a case of hysterectomy, says: "Beneath, the uterine tumor was adherent to the broad ligaments and the ovaries." Martin says of a case: "Ovary adherent; dropsy of the Falloppian tubes." Dr. M. Price reports of one of his cases: "Double tubal and ovarian disease." Professor Ed. Rose, of Berlin, says of a case: "The right tube was adherent to the right side of the pubis, fixing the uterus, and contained an intra-canalicular hæmatoma." In every instance in which I have removed the uterine appendages for a bleeding fibroid I have found the appendages so much diseased that, on that account, their removal was desirable. In removing the uterine appendages for diseased conditions, I have frequently been surprised to find in almost every instance the uterus enlarged more or less, either from hyperplasia or an incipient fibroid growth, more likely the latter condition—are they similar in nature?—and the removal of the diseased appendages not only prevented the evil which their diseased condition would do the health, constitution, and general system, but also the injury they would do to the *uterus itself, in changing its structure or developing a fibroid growth.*

The question may be suggested, Why not have tried electricity or Apostoli's method in these cases? I reply:

1. It would probably have been attended with equal or more danger. 2. The results would have been more uncertain and more incomplete.

We can not think of electricity being so harmless and inoffensive when Apostoli calls it "a double-edged agent," and says "the negative pole is a dangerous weapon, having strong power of producing congestion," and that "the manipulations in the operations of galvano-puncture will always be dangerous in incautious hands."

W. S. Playfair says: "It is a very double-edged weapon, and capable of doing much harm."* Woodham Webb says: "The negative pole has dissolvent and destructive powers," and "When the cavity of the uterus can not be reached by a sound, pass the disintegrating current through the diseased structure, and new punctures may be made from time to time on suitably presenting parts of the tumor." "New punctures!" Do we recognize the gravity and imminent danger of such a proceeding? The "British Medical Journal" well says: "Every application of electricity may be looked upon as a major operation." Apostoli says further, in his address before the British Medical Association: "All the attempts of his predecessors in the electrical cure of fibromata were defective in ways; the current was set in motion in ignorance of its intensity and with an imperfect knowledge of the best means of employing it, and by a method often dangerous from the galvano-puncture being made above the pubes and through the abdominal integument." W. Webb, who pursues a parallel line of thought with Apostoli, says: "The intensity of the current they put in action was insufficient, uncertain, and insecure, and, in the hands of all who tried it, the operation was painful, dangerous, and empirical." Engelman gave expression to the same thought before the American Gynæcological Society in 1886, saying: "The electrical current was used without any knowledge of its greatly varying quantities, and without any knowledge of dose." A writer in the "Medical Record" of July 7, 1888, in an article favoring "The Treatment of Uterine Fibroids by Apostoli's Method," says of the old treatment: "It was purely empirical and wholly unscientific."

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* "Brit. Med. Jour.," January 11, 1887.

Apostoli continues: "With these imperfections and dangers in view, I originated a new and rational way of using electricity, for the purpose of employing high intensities of current and enormity of doses, either in the cavity of the uterus or the substance of the fibrous deposit."

But this "new and rational way" seems very similar to "the old defective ways"; it employs the same "galvano-puncture made through the abdominal integument," which Engelman says is "invariably accompanied with danger and suffering," and from which, he says, "have occurred cases of peritonitis, perimetritis, and death"*; and it employs the "bare metal electrode in the cavity of the uterus," by which, as A. D. Rockwell says, "it is possible to inflict much damage," remarking "that it can not often be necessary to deal so heroically with the delicate tissues in the interior of the uterus." † W. H. Baker says that in some conditions "the sound in the cavity of the uterus is exceedingly dangerous"; and Engelman also says that he "would not advise it," and that he had "not followed Apostoli's method, for he had made prominent the use of the sound in the cavity of the uterus." Of "high intensities" the writer in the "Medical Record" just quoted says: "This enormous dosage is liable to do great harm, and for the average American woman it is too high"; and then he gives various other directions, which, as he says, "are entirely at variance with Apostoli."

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* "American Gyn. Trans."

† "New York Medical Journal," November 12, 1887.

The advantage of "high intensities," according to one writer, is "the saving of time, and thus making electricity of service in pauper clinics."

Even with this "new and rational way," "of high intensities and enormity of doses," we still think the dangers attending "galvano-chemical cauterization, intra-uterine or parenchymatous," may be greater than a surgical operation for the removal of a myoma. There is the same danger of infection, danger of shock from sudden interruption of the current,* danger of hæmorrhage, danger of inflammation,† danger of unseen internal injuries, of wounding the intestine, the peritonæum, or some larger blood-vessel; "the risk," as Apostoli says, "of opening a vesico-vaginal fistula, or wounding an important vessel." The needle may go where, and puncture what structures! It is working in the dark. Apostoli advises, "in case of any unusual hæmorrhage, immediately dilate the vagina with the expanding speculum, and, if necessary, put forceps on the bleeding part"; but, before "the vagina can be dilated by the expanding speculum," a wounded artery in the abdominal cavity may be rapidly pouring forth its flood-tide of life.

Then, again, there are the untold dangers from what they call "the disintegrating process, or ulterior changes," produced by that "dangerous weapon, the negative pole." Apostoli asserts that "it sets up a subsequent process of disintegration." How wide, or how lasting, or how fatal? What power controls it? Who can set bounds to it, and say "Thus far"? Who can keep its destructive disintegrating process *inside* of the tumor? And, if this current can check the growth and "disintegrate" the solid fibroid, how much more may it affect neighboring and finer structures! It is "dissolvent and destructive"; may not the intestine be seriously injured thereby?* We set the force at work; it is out of sight, and among the living structures! What is it doing, and how does it act? Baker says: "My opinion is that electrolysis establishes an interstitial inflammation of the connective tissue." If it does, it produces a sad condition. And has the operator the power to limit or end, when and as he chooses, this "interstitial inflammation"? Baker says further: "And in its resulting cicatricial contraction the muscular fibers are compressed, so that fatty degeneration occurs, then absorption, and the growth diminishes." "A happy combination!" as Mark Twain says.

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* Certain conditions may suddenly interrupt the current and cause a severe and dangerous shock.—"Brit. Med. Jour."

A shock would inflict damage on many.—A. D. Rockwell.

Shock caused by the sudden making or breaking a current may prove quite serious.—Engelman.

† Hæmorrhage may be caused by careless puncture or by injudicious use of the negative pole; inflammation may follow the use of strong currents injudiciously applied to sensitive parts.—Engelman.

Another writer asserts that it is by "uterine contractions and gradual shrinkage by compression and malnutrition of the tumor."† Franklin H. Martin, in explaining the action, says‡ that "he believes that electricity, powerfully concentrated in passing through the tissues, has some destructive effect on the trophic nerves, or nerves that carry trophic influences, thereby cuts off the power of nutrition in the tissues, and causes progressive or rapid atrophy of the tissues under their control." Why may not the "atrophic" effects of the current affect the trophic nerves of the carrying blood-vessels, and exert destroying or atrophic influences on the finely constructed intestine? How do we stay the force? Is there a landmark or a demarkation beyond which it shall not pass? Again, we are told that "the stanching effect from hæmorrhage is due to the cutting off of the supplementary circulation."* Why may it not cut off the supplementary circulation of other structures? How can it "atrophy," or have some destructive effect upon the trophic nerves, and affect the "supplementary circulation" only of the hard, insensible tumor, and not similarly affect neighboring vital organs?

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* Since writing the above I have noticed the following case reported as treated by galvano-puncture: At the autopsy "the larger lobe of the fibroid was cut open; it displayed a uniform surface, white and cartilaginous; no marks or traces of the electrodes that had repeatedly penetrated the growth. The evidences of general peritonitis were very marked; coagulated lymph, partly organized, was plastered over the tumor and intestine. *Portions of the intestine* were almost *black* and *gangrenous*." Thus the finer structures were more affected than the tumor.

† "Am. Jour. Obstet.," December, 1885.

‡ "Medical Record," December 17, 1887.

Are the contractile cicatrices from the positive cauterizing and consequent narrowing of the uterine canal to be desired, or are they beneficial? They are produced for the purpose of arresting hæmorrhage; but hæmorrhage may depend upon other causes than the sanguineous exudation or excessive secretion of the interior of the uterus.

And there are yet other dangers; even the great apostle speaks of "a fatal error of diagnosis." He says: "I did not recognize the presence of a suppurating ovarian cyst, which caused death from peritonitis." By surgery this unexpected condition could have been managed, and the patient saved. He says of another case: "Death was due to a puncture made too deeply! The consequence was intraperitoneal gangrene! Then "a puncture made too deeply" may cause "intraperitoneal gangrene"? He confesses to having "excited or aggravated in the course of five years ten perimetric phlegmonous inflammations"; and how many perimetric phlegmonous inflammations have been excited by less skillful hands? Says Knowlsly Thornton:

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* "Brit. Med. Jour.," March 24, 1888.

"We do not fully appreciate the dangers of the method. I know of one case in which rapidly fatal pyæmia followed a few applications in the hands of one experienced in the use of the method. The journals tell us of narrow escapes, and even such careful manipulators as the Keiths record the history of a serious case of cellulitis of which the gravity is not lessened by attributing it to the carelessness of the patient." * Dr. Champreys said, at the meeting of the London Obstetrical Society, June 21, 1883, that "he had heard of wide-spread suppuration and septicæmia, and of death after the employment of this method, and regretted that these cases had not been reported." A physician, in the American Gynæcological Society, says: "I operated in one case, and set up a pretty smart attack of peritonitis by introducing one needle through the abdominal wall"; there was also reported by another physician at the same meeting "an enormous pelvic abscess caused by electrolysis." Another said: "Peritonitis and pelvic abscess are precisely the dangers liable to follow the use of electricity by abdominal puncture." †

Apostoli also speaks of "errors of practice" from the too violent or too intense use of the negative pole in the case of subacute or perimetric inflammation, and says: "I acknowledge having been sometimes unsuccessful, and my failures I shall recount at length in a work now in preparation, and will devote a chapter to needful precautions," remarking that "he has already enlarged upon the dangers elsewhere." If all should "write a book," and "recount at length their failures" and "enlarge upon the dangers," "I suppose that even the world itself could not contain the books that should be written."

But, with all the stupendous dangers and terrific possi-

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* "Brit. Med. Jour.," March 23, 1888.

† "Am. Gyn. Trans.," 1887.

bilities, Apostoli says: "It is very easy of application, since it only requires an elementary acquaintance with the principles and practice of electro-therapeutics. It is simple, for it is ordinarily nothing more than a skillful uterine therapeutical soundage." Mundé says: "It requires no prolonged study of the mysteries of electricity, no special knowledge or experience as an electrologist." But, when you think of making punctures in a sick woman's abdomen "for a depth of from three to four inches, according to the size of the tumor," it would seem to require a profound knowledge of something. The "Lancet," February 25, 1888, says: "The technical knowledge required consists in the knowledge which those accustomed to pelvic and abdominal tumors possess, and which electricians as electricians do not possess. Are we, then, to expect the appearance of a new hybrid—the 'electro-gynæcologist'"? Playfair says: "Cases should be treated by gynæcologists, and not left to professional electricians; as well leave ovariotomy to the cutlers who made the instruments used in the operation." Engelman says: "Attention to the minutest details are necessary to the safety of the patient; when the highest intensities are used, we must apply the electrical current with the utmost circumspection."

And there are yet other and unknown dangers, some unrecognized bad condition produced by the current that has a tendency to end in or produce such after ill results. Apostoli tells of "seven who had had the current applied, and afterward put themselves into the hands of six most eminent surgeons, and not one of the seven recovered from the operation." What deadly influence had resulted from the use of the current, or what abnormal change had thereby been produced? Was there an "atrophy" of some vital part, "a dissolvent" or "destructive" process, or was there a "cutting off of the supplementary circulation of some life structures"? Lawson Tait reports in the "British Medical Journal," December 17, 1887: "I have recently operated (in addition to one previously alluded to), which has been made worse by electrical treatment." Also in the "British Medical Journal" of July 14, 1888, he says that "he had that day operated on a lady who had been treated by electricity for months, not only without benefit, but with absolute detriment." In the "American Journal of Obstetrics," March, 1888, a case of, as the writer, Dr. Victoria Scott, calls it, "a mass of interstitial and subperitoneal fibroid tumors." It states that "January 8th an insulated needle was inserted for five minutes with the negative pole in the tumor. January 18th, needle was again inserted for thirteen minutes to the depth of half an inch. February 6th, uterus was swollen around the site of the puncture, and more tender than usual; full feeling in the pelvis; constant bearing down." What injury was done? Was perimetric phlegmonous inflammation excited, or intraperitoneal gangrene? A short time after this the patient was operated on, in Pennsylvania University Hospital, by one of our most successful and best-known American gynæcological surgeons, and "the patient died thirty-six hours after"; the writer of the article says: "Fallen a victim to the surgeon's knife!" Not so; if the true history was known, it would say: "A victim to the puncture-needle." Apostoli says: "A puncture made too deeply produces intraperitoneal gangrene," and the operator confesses that, "in making the second puncture, the needle was introduced too deeply, and set up some inflammation." But for the previous electrical treatment, this hysterectomy might have been a happy success, as many others have been.*

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* Dr. V. Scott says in the same article: "The time has come when many in the profession are ready to severely criticise the surgeon who dares to remove either the ovaries or the uterus for the relief of this

Dr. L. Byrne, of St. Mary's Hospital, Brooklyn, presented to the New York Obstetrical Society, December 20, 1887, the histories of two cases of "laparo-hysterectomy." One was for sarcoma of the uterus, entirely successful; the other was for uterine fibroid, certainly a much simpler case, but it had been treated by electricity; so it resulted fatally. Is there no lesson or warning in all this? The surgeon says in his report, "being convinced that no advantage but some risk would attend further electrolytic treatment"; and he has since written me that "the patient had been treated for a short period by electrolysis, but without any satisfactory results; probably a result that proved deeply unfortunate. E. Cutter, in his remarkable series of cases published in the "American Journal of Obstetrics," February, March, and April, 1887, reports a case:

Woman, forty years of age, pedunculated fibroid ("of which," Sir Spencer Wells says, "it would be idle to suggest electricity, as myotomy would be the work of minutes, and the

trouble, and it may be in the near future that such an operation will be considered as one of malpractice, and the operator punished accordingly."

Professor T. G Thomas says: "He who allows death to occur from uterine fibroids without offering the patient the chance of safety possible from gastrotomy, is assuming a responsibility far greater than that which would attend our honest and well-directed efforts to save life."—*Op.*, p. 548.

The London "Lancet" of February 25, 1888, says: "It is by no means true that it has been demonstrated beyond doubt that electrolysis, when properly performed, is the most certain, safe, and successful (*sic*) way of dealing with fibroid tumors that we possess."

One case Dr. Scott reports: "Patient, thirty-four years old; a large submucous intra-uterine fibroid and a fibroid tumor, about the size of a walnut, protruding posteriorly from the fundus. . . . Patient desires to be kept under treatment till the menopause; visits the office weekly." Suppose the menopause is delayed till she is sixty, is she to visit the office weekly for thirty years on account of a tumor the size of a walnut?

risk scarcely worth mentioning"). The general health of the patient was good; face and complexion healthy. Electrolysis was thoroughly applied several times, but the tumor was in no way affected, diminished, or softened; the patient's breath became very short, and an excessive serous vaginal discharge prostrated her. Life became a burden. Laparotomy was resorted to, but apparently she had been so injured by the previous electrical treatment that she died in fourteen days. The operation *per se* seemed entirely successful. The record says there was so little shock that the pulse was in no way disturbed, and after the operation the patient desired to see the tumor, and asked for the details of the operation.

Another case reported by the same writer:

Woman, forty-eight years of age, with lobulated fibroid tumor of the uterus. General health pretty good, and does not suffer from hæmorrhage. Apparently this was a very favorable case for operation, and the operation in itself would have been attended with the most happy results; but electrolysis was used; one electrode was introduced into the uterus *per vaginam*, the other introduced through the abdominal parietes. At the second operation both electrodes were passed through the abdominal parietes. Eleven more operations. Report says: Patient benefited by the treatment, the tumor became smaller, then it enlarged, hardened, and increased in size, and finally had to be removed together with the uterus. The patient lived thirty-six hours.

Dr. Cutter, however, gives the case of a woman forty years old, having a pedunculated fibroid, attended by no hæmorrhage; four applications of electricity were made, after which abdominal section was resorted to, for the reason that the tumor might be ovarian; tumor was removed, and patient recovered. "But," says Dr. Cutter, "this case is counted as one in which galvanism had no effect, because laparotomy was resorted to before relief was obtained." If galvanism had had its effect, would the patient have recovered? Dr. James Hunter reports one case in which electrolysis was thoroughly tried on a large uterine fibroid. He says: "I had subsequently to remove the uterus, and the patient recovered. I examined the uterus and found no evidence of any effect on the tissue of the fibroid by the current." In this case also "galvanism had no effect."

The galvanic puncture is more to be dreaded and produces more serious complications than the tapping of ovarian cysts, and seems to have a tendency to end in more disastrous results. I think a question to be asked of all who apply to be relieved of the miseries of a uterine fibroid is, Have you had any electrical treatment, or the galvano-puncture? and if they have had, surgeons would be wise if, in many cases, they would, on this account, refuse to operate.

An operation to relieve a uterus enlarged by a fibroid is certainly a great responsibility. T. A. Emmet says: "To remove the uterus when enormously enlarged by a fibroid growth is unquestionably one of the most formidable operations a surgeon can be called upon to undertake." But every step can be taken with thoughtful, far-seeing intelligence, all probabilities and possibilities weighed, emergencies carefully provided for, and using every care and precaution, knowing that the procedure, if successful, will add years to a life which is now "not worth living," and the increasing miseries of which can not be much longer endured. The two operations here reported were undertaken with the dangers and difficulties full in view, guarding against the dangers as much as possible, and with a thorough design to relieve suffering, save life, and restore to health. "Looking, therefore, at the difficulties and dangers of abdominal surgery and at the avowed impotency of the greater part of medication in cases of fibroma," surgery was elected as the best treatment for these two cases, as less dangerous than electrolysis, and as giving more perfect results. Greig

Smith says: "From the point of view of immediate mortality, it is as justifiable as any other major operation." The "British Medical Journal" says: "It is an operation not attended with high mortality in experienced hands." M. D. Mann says: In some cases "supravaginal hysterectomy affords nearly as good a chance of success as does ovariotomy in a simple ovarian cyst."

Apostoli speaks of "surgical insecurity and therapeutical insufficiency"; but has not the electrical treatment both "insecurity" and "insufficiency"? In the same series of cases referred to, Dr. Cutter's first direction seems to savor of insecurity. He says "the fibroid must be penetrated deeply in the direction which the operator deems most desirable, and if the pulse becomes accelerated, the respiration hurried, the face pinched, the countenance Hippocratic, and the skin sweaty and cold, it was thought time to stop"!

"The first case, where a regular and determined effort was made to try the effects of electricity upon a uterine fibroid to arrest its growth: The patient, thirty-six years old. Tumor, extending midway between the pubes and umbilicus, weighs four pounds, and entirely free from adhesions."

In the case of such a tumor in so healthy a person, simply removing the uterine appendages, which doubtless were diseased, would have been sufficient, and would have saved the patient all future suffering. Certainly removing the tumor by hysterectomy, with proper care and precautions, would have seemed to be a safe operation; but electrolysis was elected, punctures were made into the tumor through the abdominal walls, and death resulted soon after. Without any electrical treatment the woman would probably have lived many years, at least until worn out with the growth.

Another case: Woman twenty eight years old, a fibroid of the uterus. First operation: electrodes penetrated the abdominal parietes; a copious discharge of bloody serum followed the introduction of the electrodes, which flow continued for twenty-four hours through the punctures, after the electrodes were withdrawn. Second operation followed by pain in the abdomen, vomiting, hebetude, headache, fever, prostration, etc. Third operation: symptoms more severe, pain greater, and more prostration. The patient was confident that the tumor was lessened in size, but the symptoms of profound exhaustion and extreme weakness recurred soon after, with an asthenic type of typhoid fever which ended her life in about four weeks. The author well says: "When we consider the ordinary result of punctured wounds of the peritonæum it is certainly remarkable that no more patients have perished under the present operation."

Another case: Woman fifty years of age. The tumor had existed for a year. The electrodes were passed through the abdominal walls, and the current continued for five minutes. The next day she had chills, was bloated and swollen in the abdomen, and died six weeks after. Another case: Woman fifty years of age, with a hard abdominal uterine tumor, had two applications of the battery, and thought she had improved and the tumor diminished in size. Third operation: fluid of a sanguinolent character copiously exuded through the punctures; death occurred fourteen weeks after. Woman forty-five years old; eight or ten small, freely moving lobes could be readily felt in the abdomen. Five operations. One electrode was passed through the rectum into the tumor about four inches; the other electrode was passed into the most prominent lobe on the right side of the navel; the current was continued for ten minutes, and was followed by pain and prostration. Second operation: one electrode was introduced through the rectum and the other into a lobe farther to the right of the navel. "There was some difficulty in penetrating the lobe, as it slipped away from the hold" (showing that it was a pedunculated fibroid with no adhesions and very easy to have managed surgically). The current was continued for ten minutes, and was followed by prostration and distress, quicker pulse, pain in site of the abdominal punctures, slow and irregular breathing, and universal tenderness; pulse, 120 to 130; temperature, 103° to 104° F.; nausea, and finally delirium. Death eleven days after operation. The author again remarks: "When the deep penetration of the abdominal cavity is considered, it appears remarkable that more deaths have not occurred."

Woman forty-one years old; fibro myoma of the uterus. Both electrodes were six times plunged through the abdominal walls into the tumor to the depth of three or four inches, and the current each time continued for five or ten minutes.

Was there much security in such a procedure? An attack of peritonitis followed, from which she died.

Patient twenty-four years old, health not much disturbed, able to go through her daily duties as domestic: First operation; the electrodes were thrust into the tumor at two points, six inches apart, to the depth of four inches; galvanic current maintained five minutes. Returning to consciousness, she complained of severe pains through the abdomen. Three other operations were repeated in the same manner. Patient said "she was sure the tumor was smaller, because her clothes seemed much looser about her." Two more operations; death a year after. Patient forty-three years old; tumor size of six months' pregnancy; second introduction of the electrodes was followed by profuse hæmorrhage, loss of appetite, and strength. "Death ensued from prostration." * Patient thirty-eight years old; had noticed an enlargement of the abdomen for three or four years; the battery was used; thought she was better, but afterward died.

Of the next case the writer says: "As to the effects of electrolysis, they were not encouraging." He reported

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* In striking contrast to such cases are the numerous reports of hysterectomy safely performed and the health of patient entirely restored. As in London "Lancet," February: "A tumor measured nine inches transversely; hysterectomy; patient's temperature never above 100·6° F." "Lancet" of March: "Uterus irregularly enlarged as in the sixth month of pregnancy; woman failed from loss of blood; uterus and mass removed; temperature never above 100° F. Patient entirely restored and able to pursue her vocation."

"some cases diminished in size," as Dr. T. A. Emmet once said "he did not doubt that there had been many successful cases on record, but he had not been so fortunate as to see one." At the meeting of the New York Obstetrical Society, January 18, 1887, was reported the history of "a case of fibroid tumor of the uterus. An insulated platinum sound was introduced into the uterus, connecting it with the positive pole of the battery, while a smooth, round steel needle, properly insulated, was introduced through the posterior cervix into the tumor. A current from eighteen cells of a zinc carbon battery was passed for twenty minutes. Two days after, operation was repeated with thirty cells; she grew gradually weaker and died a month after. At the autopsy the tumor was found to be universally adherent, and a large portion of its interior was found to be disintegrated."

Dr. T. A. Emmet thought that whenever electrolysis was sufficiently effective to cause disintegration of the tumor, it generally caused the death of the patient. Dr. J. Byrne said: "Several years ago I applied the galvanic current to a large fibroid, fifteen séances being held. I thought I did more harm than good."

As to its "insufficiency" 1. Apostoli says: "There are cases where there is no possibility of satisfactory treatment, owing to an apparently absolute intolerance of high intensities of current."

2. He says: "I have met with the same intolerance in some hysterical subjects in cases of very irritable uterus."

3. "In cases of perimetric and interstitial inflammation."

4. "The class of cystic fibromata."

5. "Tumors with a tendency to malignant degeneration." He says: "I have recorded three such instances; in them intra-uterine galvano-cauterization generally proved

useless." And in how many more may it prove useless? He continues: "Something more is demanded, and we must seek in galvano-punctures means more powerful, more efficacious."

6. Baker says: "So long as there is any acuteness present in the inflammatory process, just so long would it be hazardous to attempt any manipulative interference." And Mundé remarks: "It should be used only in chronic conditions." Also, Apostoli emphasizes the special danger whenever there is any trace of perimetric inflammation present." (Are there any cases of fibroid tumor where there is no peri-uterine inflammation present?)

7. Engelman says: "Tumors with a large portion of muscular structure are less liable to be treated satisfactorily by electricity." (Shall we remove the tumors, and, if the muscular structure does not predominate, use electrolysis with assurance of success?)

8. The "insufficiency" of electrolysis is especially seen in that it is of no avail in all cases of "multiple fibroids." At a meeting of the New York Obstetrical Society two members of the society said "that multiple fibroids were not suitable for electrolysis," one remarking: "In order to obtain electrolytic action, one electrode must be in the mass." The other said that "he had never treated multiple fibroids by electrolysis, for the method would prove too tedious, owing to the necessity of treating each fibroid by itself, seeing that it was essential to insert one pole in the growth." One of these gentlemen, Dr. John Byrne, of St. Mary's Hospital, Brooklyn, has since written me: "Whatever benefit may possibly follow such treatment in cases of simple fibroid, I would have no confidence in it whatever for multiple fibroids." If this is true, it follows that electrolysis is insufficient in a large majority of cases of fibroid tumors, for probably most fibroid tumors are

"multiple fibroids," as in an expression incidentally used by Bantock, in reporting five successful hysterectomies to the British Gynæeological Society: "The uterine body being enlarged by a number of small fibroids." The two tumors reported in this paper, though apparently each was one single solid tumor, yet each consisted of a number of separate independent growths; one had ten, the other had twenty-two nodular masses; so, for each of these cases, electrolysis would have had entire "insufficiency." And further, as Apostoli says, "the electrode must enter only two centimetres"; and, as the member of the Obstetrical Society says, "it is essential to insert the pole into the growth"; and as some of the imbedded tumors were many inches away, how was it possible to effect proper electrolytic treatment in these two cases, especially as no human prescience could, in the living subject, have told how many fibroids there were, or how located?

9. Sir Spencer Wells, in his late address before the Brighton and Sussex Medico-chirurgical Society, published in the "British Medical Journal," May 12, 1888, says: "There are conditions of fibroid tumors in which it would seem to be almost idle to suggest electricity. In a polypoid growth from the mucous surface of the uterus I should not think of any slow or gradual process. Neither does it appear very probable that a subperitoneal outgrowth from the body or fundus of the uterus could be in any degree affected by any current that could be made to reach it. Myotomy would be the work of minutes, and the risk scarcely worth mentioning. Even large solid tumors, the removal of which means the removal of a great part of the uterus, have been successfully removed by myself and by others, and success has increased with experience."

10. The "insufficiency" is seen in the uncertainty and incompleteness of the results. Apostoli says: "When the

treatment is fully carried out, the tumor will undergo a manifold reduction in size—a reduction appreciable by the touch, and demonstrable by internal measurement. The further diminution of the tumor will continue for months, varying in amount from one fifth to one half of the original volume." He says again: "Our therapeutic resources carry us as far as the sensible reduction of fibroid tumors, and not to their total absorption." So, after all the treatment, the tumors are still there. As Sir Spencer Wells says, "the women are not radically dispossessed of their tumors." The "British Medical Journal" says: "A solid tumor can not be conjured away. Its atoms are indestructible."

Thus, in the last case I have reported in this article, "if the treatment had been fully carried out," lasting years probably, and "after several months' improvement," and with the best results, the patient would still have a tumor that would weigh six pounds and three quarters or ten pounds and four fifths. Would this be very gratifying, or justify submitting to the dangers and uncertainties of electrolysis? Are there not *incompleteness* in the results and *insufficiency* in the treatment? Will any one pretend to say that with a fibroid tumor weighing six pounds and three quarters, or ten pounds and four fifths, the patient will be cured or be very comfortable? Would any man accept the situation and consent to carry within him for unnumbered years a weight of six or ten pounds and glorify it as "a cure"? If a tumor one half or one fifth of the original size is left, are not the results incomplete and the treatment insufficient? Thomas Keith, in his article on treatment of fibroids by electrolysis, says: "The tumor in every case was reduced in size; in one case the tumor had gone down two thirds."* In the twenty-six cases of hysterectomy for fibroid which he reports in the same paper there were two tumors which weighed twenty pounds each. Now, if by electrolysis these tumors had been reduced two thirds, like "one of his cases," each patient would still have been left with a tumor that weighed six pounds and two thirds. But we notice that twelve of the cases in which he thought proper to perform hysterectomy, in each the tumor weighed less than six pounds and three quarters, or less than the tumor which would have been left in these "cured women." Two of the tumors which he removed by hysterectomy weighed five pounds each, two weighed four pounds, three weighed three pounds each, one weighed two pounds and a half, and one, one pound.* So twelve of the cases on whom he saw proper to perform hysterectomy were less afflicted than the one he had brilliantly cured. Keith says "all were reduced in size"; it was only "one in whom the tumor had gone down two thirds." So if the two patients who each had a tumor weighing twenty pounds had had the tumors reduced one half or one fifth (Apostoli's best results), each of them would have been left with a tumor weighing ten or sixteen pounds, and with the awful possibility of its increasing!

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* "British Med. Journal," Dec. 10, 1887.

11. The "*insufficiency*" of electrical treatment is shown also in the uncertainty of permanent improvement. Keith said, "should the improvement be permanent," as if he did not know, and then adds: "He has Apostoli's word that if the treatment be carried out long enough, such is generally the case." But Apostoli says: "More time and observation are needed before coming to complete conclusions." The "British Medical Journal" says: "It will be interesting to see if, in Apostoli's cases where large tumors have been re-

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* In Schroeder's Frauenklinic I saw a woman with a uterine fibroid about the size of a cocoa-nut. Schroeder did not think it worth while to perform hysterectomy, yet I am sure Schroeder would say that hysterectomy as an operation has done great good.

duced in size, the reduction will prove permanent and will not render fresh sittings necessary within three or four years." A case reported in the "American Journal of Obstetrics," p. 266: "Tumor diminished one third. Two years after, tumor returned to its former size." Another case, p. 271: "The electrodes were passed into the tumor six times; tumor sensibly diminished. At last report it had increased in size again." P. 275: "Arrest of growth of tumor continuing about two years, when it increased in size again." P. 376: "Tumor very much lessened in size; one half as large in bulk." Last record: "Tumor larger than ever." P. 380: "Tumor behind the uterus seemed smaller." Last record: "I heard that the troubles had returned and she lives in distress." P. 381: "A movable, multilobar, soft, round tumor, extending from the pubes to above the navel; had repeated galvanic punctures; tumor consolidated." Last record: "Tumor enlarged to twice its usual size." P. 388: "Tumor diminished and softened; subsequent increase of tumor." Another case: "Electrodes passed repeatedly into the tumor three inches deep. In six months death from the recurrence of the bad symptoms. A fibro-myoma extending upward into the abdomen as far as the umbilicus; three times the electrodes were made to penetrate the tumor to the depth of four inches. Tumor became sensibly diminished in size; soon after, a return of all the previous bad symptoms; her condition grew rapidly worse till she was relieved by death." Of many cases that are now published as triumphs and cures there may be yet a future history, as W. H. Baker, in his late experience of fourteen cases, says of one of them: "There is now some indication of returning growth accompanied with suffering."

And in many other instances can we be as sanguine of cure as the operator would seem to hope? As the "British

Medical Journal" says: "Many uncured cases may be reported as cured";* and says elsewhere of the report of a case by one physician: "We can not share the author's confidence about the partial cure of an ovarian sarcoma with perimetritis by electricity; a sarcoma is not always easy to recognize, even when exposed by abdominal section. Electricity may some day be made to cure malignant tumors, but first we must be sure both of the electricity and the tumor." The same journal remarks: "As long as results are questionable, men have a right to oppose and object; nor are they in any way bound to make trial of experiments, the value of which has not been impressed upon their convictions."

12. The "insufficiency" is further seen in the great uncertainty of even definite improvement. So often the report is in the language of one, "the tumor was not arrested"; or, as a case reported by A. D. Rockwell: "Patient, thirty-three years old, had repeated applications of electrolysis; electrodes passed through the abdominal, etc. *No impression made on the tumor.*" The same writer says in the "New York Medical Journal," November 12, 1887: "Electrolysis will fail utterly to accomplish what previous experience has given us every reason to expect; at one time it will relieve, at another fail to do so." He says further: "I do not believe a more extended experience will fully confirm all that has, with so much enthusiasm, been maintained by some of Apostoli's followers. It is not a universal means, and we must not make it a panacea." The report from Doléris's clinic is: "No matter what the intensity of the current employed, neither disappearance nor marked diminution in size of the tumor has been noted. When diminution in size seemed to follow, careful measurement showed that it was illusory, there being simply a downward displacement

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* "British Medical Journal," July 14, 1888.

of the tumor." Steavenson, who has charge of the electrical department of St. Bartholomew's Hospital, London, in an address before the Brighton and Sussex Medico-chirurgical Society, speaking of uterine fibroids, said: "The tumors do not disappear as rapidly or as completely as we have been led to expect, or perhaps as British gynæcologists supposed would be the case. I do not think the electrolytic treatment will supplant the necessity for abdominal section or removal of the uterine appendages in such cases as those in which these operations would be appropriate. In the use of electricity we have a means of treating fibroid tumors which is superior to any we have formerly employed short of their entire removal."

Dr. W. H. Baker, of Boston, calls it "the more slow and inexact method," and at a meeting of the American Gynæcological Society said: "The operation of hysterectomy is now too well established as a means of cure for large subperitoneal and interstitial fibroids, and, in the hands of a few, is too successful for me to offer as a substitute electrolysis." Also in the same society Dr. Chadwick, of Boston, remarked, after an address by Apostoli, "that he had followed the author's method of treatment during the past six months, but had not met with satisfactory results." In one instance the size of the tumor was definitely reduced after a few applications; in another, after eighteen applications, there was no appreciable change; in two instances pain and fever were produced, and two cases terminated fatally.* Dr. James B. Hunter said: "I had the pleasure of seeing Dr. Cutter operate and of seeing a number of his cases afterward, together with Dr. Thomas, some years ago, and we failed to see a case which was actually cured, and there were some who suffered considerably from the treatment. I can say that I have never seen any case permanently cured by galvanism."* Dr. John Williams, president of the London Obstetrical Society, justly remarked before that society and as reported in the "British Medical Journal," June 30, 1888: "The literature of the subject was not inconsiderable, but it was very disappointing, for it mainly consisted in the discussion of instruments and the mode of using them. Dr. Apostoli, in particular, has published little else except a series of general assertions and sweeping statements. In his later work on chronic metritis and its treatment by electricity there was much about instruments and many sweeping assertions, but not a single case in support of the latter. The method has thus been put to the test by its founder, and with very unsatisfactory results."

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* "Medical News," September 24, 1887.

Bantock said "there was much assertion as to what this treatment was going to do, but little evidence of what it had done." Playfair said "it did good for a time."

One medical journal has asked, "if the electrical treatment of fibroids is going to supplant all the methods, or is it an ephemeral fashion practiced in good faith, but soon to be extinguished by the mere fact of bad results?"

What this marvelous unseen element may do, how much this mystic power may be utilized in gynæcological electro-therapeutics, we can not say. One writer argues that "this mysterious fluid may do much good, for it has power sufficient to shatter the firmest structures of God or man by an instantaneous flash." But we know that when "it shatters the firmest structures of God or man" it does not in any way annihilate, dissolve, or disintegrate them, or make them disappear. It splits the tree and kills the man, but neither man nor tree are in any way reduced in size; none of their particles are conjured away. The young man who died instantly by touching the end of the electric-light wire was just as large and just as substantial after his unwonted electrolytic treatment as before. The fatal electrolysis had no effect in dissolving, disintegrating, or reducing the size of any organ in his body, but "the dangerous negative pole" killed him effectually. We hope that this powerful agent may be intelligently controlled and utilized in therapeutics, for we gladly welcome any means of relieving suffering humanity.

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* "Amer. Gyn. Trans.," 1887, p. 372.